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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/982,271	10/17/2001	David P. Gurney	CM01968G	7238

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UMDNJ Office of Patents & Licensing  
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New Brunswick, NJ 08901

EXAMINER
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ZHENG, EVA Y

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/982,271		GURNEY ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Eva Yi Zheng		2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 October 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 2 and 15 are objected to because of the following informalities: missing word "and" after phrase: "Fast Walsh Transforms.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Popovic (US 6,091,761).

- a) Regarding claim 1, Popovic discloses a correlation method comprising the steps of:

receiving a signal sequence (inherent as samples SS received and stored; 401 in Fig 4; Col 6, L1-2);

re-ordering the signal sequence based upon a predetermined order (403 in Fig. 4; Col 6, L7-11 and Col 6, L34 - Col 8, L48); and

performing a transform on the re-ordered sequence (404 in Fig. 4; Col 6, L11-14).

- b) Regarding claim 9, Popovic discloses a device comprising:

a receiver for receiving elements of a signal sequence (inherent as samples SS received and stored; 401 in Fig 4; Col 6, L1-2);

a state generator for generating a sequence of addresses to translate between a pseudonoise sequence and a Walsh sequence (403 in Fig. 4; Col 6, L7-11 and Col 6, L34 - Col 8, L48); and

a storage medium, coupled to the receiver and the state generator, for storing each element of the signal sequence at a given address according to the sequence of addresses (402 in Fig. 4).

- c) Regarding claims 2 and 15, Popovic discloses the transform is selected from a group consisting of: Fast Hadamard Transform (FHT), Fast Walsh Transform, Fast Walsh-Hadamard Transform (FHT) (as shown in 404 in Fig. 4).
- d) Regarding claim 3, Popovic discloses the method of claim 1 wherein the signal sequence comprises at least one m-sequence (Col 6, L45-60).
- e) Regarding claim 4, Popovic discloses wherein the predetermined order is based on a generator polynomial of at least one m-sequence (Col 6, L58 – Col 7, L15).
- f) Regarding claim 5, Popovic discloses the method of claim 1 wherein the signal sequence comprises at least one specially augmented m-sequence (Col 6, L45-60).
- g) Regarding claim 6, Popovic discloses wherein the predetermined order is based on a generator polynomial of at least one specially augmented m-sequence (Col 6, L58 – Col 7, L15).
- h) Regarding claim 7, Popovic discloses wherein a dimension of the transform is equivalent to a number of available channels (as shown in Fig. 1; Col 4, L9-14).

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- i) Regarding claim 8, Popovic discloses wherein a dimension of the transform is different than a number of available channels (as shown in Fig. 2; Col 4, L40-45).
- j) Regarding claim 10, Popovic discloses the device of claim 9, wherein the state generator comprises a linear feedback shift register (Col 6, L38-43).
- k) Regarding claim 11, Popovic discloses the device of claim 10, wherein the linear feedback shift register is a Fibonacci sequence generator (equivalent as "Galois Field"; Col 6, L38-43).
- l) Regarding claim 12, Popovic discloses the device of claim 9, wherein the state generator is a second storage medium (403 in Fig. 4).
- m) Regarding claim 13, Popovic discloses the device of claim 9 wherein the pseudonoise sequence is a specially augmented m-sequence (Col 6, L45-60).
- n) Regarding claim 14, Popovic discloses the device of claim 9 further comprises a processor, coupled to the storage medium, for performing a transform on at least a portion of the elements of the signal sequence stored in the storage medium (404 in Fig. 4; Col 6, L11-14).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Popovic (US 6,091,761).

Regarding claim 16, Popovic discloses all the subject matters described above except for the specific teaching of an analog-to-digital converter in the receiver. However, analog-to-digital converter is a well-known and essential element in any digital communication system. Popovic discloses a spread spectrum communication system employing PN sequences. Therefore, it is obvious to one of ordinary skill in the art at the time of invention to realize and understand that there's an analog-to-digital converter implement in the DS-CDMA system by Popovic in order to convert received analog signals to digital, permuted and correlate thereafter. By doing so, decrease number of operations in despreading, reducing power consumption, and reduce size in IC implementation.

### ***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Yi Zheng whose telephone number is (571) 272-3049. The examiner can normally be reached on 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-879-9306.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

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Washington, D.C. 20231

or faxed to:

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

January 25, 2005

Eva Yi Zheng  
Examiner  
Art Unit 2634



**SHUWANG LIU**  
**PRIMARY EXAMINER**